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BACKGROUND INFORMATION

August - 1987

THE BOEING 767 TWINJET

The Boeing 767 is a new commercial passenger airplane design making use of the latest in technology to provide maximum efficiency in the face of rising costs, while extending twin-aisle passenger cabin convenience to routes never before served by wide-body airliners. In the 767 extended-range version, it is the longest-range twinjet airliner available anywhere. The 767-300 with lengthened fuselage increases the capacity for medium-range service by some 50 passengers. The extended range version of the 767-300 can carry the increased passenger load efficiently up to 6,600 statute miles (10,600 km).

Production of the new twinjet began with an order for 30 medium-range 767s announced by United Airlines July 14, 1978. The first 767, a Boeing-owned aircraft, was completed and rolled out of the Boeing 747/767 plant in Everett, Washington, August 4, 1981, and made its initial flight September 26, 1981.

Each 767 is powered by two high-bypass-ratio turbofan engines -- selected by the airline customer -- the General Electric CF6-80, Pratt & Whitney JT9D-7R4 or Rolls-Royce.

The 767's two-aisle passenger cabin follows the tradition for spaciousness established by the 747, first of the wide-body airliners. Extensive passenger research has shown the seven-abreast seating concept to be preferred by the great majority of those surveyed, as is a five-abreast first class configuration.

The 767's design has been refined to give maximum fuel performance, operational flexibility, low noise levels, advanced airplane systems including digital electronics in the most advanced airliner flight deck, and growth potential. New structural materials are being employed such as improved aluminum alloy, graphite composite and hybrid Kevlar/graphite composite.

The 767 cabin, measuring more than four feet wider than the single-aisle Boeing jetliners, seats about 216 passengers in a typical mixed-class configuration (six-abreast in first-class, seven-abreast in tourist class). Many other arrangements are also possible, up to 290 passengers in eight-abreast seating for charter flights.

Thus the Boeing 767 offers a profitable, twin-aisle airliner size between the six-abreast 757 and larger wide-body airplanes now in service.

Lower-deck volume available for baggage and cargo totals 3,070 cubic feet (86.9m³) more than 45 percent greater than the lower-deck capacity of the 707 and more than any commercial transport in the 767 class.

With its advanced-design wing, the 767 requires a takeoff field length of 5300 feet (1615 m) at a maximum gross weight of 282,000 pounds (127,915 kg), 5900 feet (1798 m) at 300,000 pounds (136,080 kg) and 6500 feet (1981 m) at 315,000 pounds (142,800 kg), and 7900 feet (2408 m) at the 767ER's maximum gross weight of 345,000 pounds (156,490 kg). The wing, a Boeing advanced technology airfoil, is thicker, longer and less swept back than the wings of earlier Boeing jetliners, all in the interest of fuel economy.

Initial cruising altitude is the 39,000-foot (11,887 m) level.

Fuel burned per seat (a standard measurement of airliner efficiency) is at least 35 percent less for the 767 than for earlier medium-range jetliners, which could save an airline replacing earlier airliners with a 10-airplane 767 fleet up to \$25 million a year in fuel costs alone.

Performance of the standard Boeing 767, the medium-range version, makes possible nonstop operations over such routes as San Francisco-Cleveland, Los Angeles-Miami, Mexico City-Chicago, and London-Cairo. In the U.S. transcontinental version, the 767 can operate nonstop between New York and San Francisco, and the 767ER's maximum range of 5700 statute miles (9200 km) makes possible nonstop flights between New York and Beirut, London to Bombay and Tokyo to Sydney.

Weight distribution of the airliner on its landing gear permits flights from the pier-supported runway at LaGuardia Airport, New York to Dallas, Miami or San Francisco.

The 767's overall length is 159 feet 2 inches (48.5 m). Its fuselage length is 18 feet (5.4 m) more than that of the 727. Wing span is 48 feet more than the 108 feet (32.9 m) of the 727 wing.

With its order for the 767-300s, Japan Air Lines became the lead-off customer for that version. The 767-300 features a fuselage lengthened by 21 feet 3 inches (6.43 m) to 176 feet 2 inches (53.65 m). Other differences between the 767-300 and the 767-200 are a strengthened main landing gear, nose landing gear and wheel well, plus additional metal thickness in certain areas of the fuselage and wing lower surface.

Passenger capacity of the 767-300 in JAL's configuration is 254 seats in mixed class, compared with 211 seats in the 767-200. The first 767-300 went into JAL passenger service in late 1986.

The 767ERs have the same dimensions as the standard 767 but increased fuel capacity to give a range of 5,700 statute miles (9200 km) with full passenger payload.

Both the 767ER and the 767-300 will have a maximum gross weight for takeoff of 345,000 pounds (156,490 kg), compared with the 300,000-pound (136,000 kg) maximum takeoff weight for the original 767.

BASIC SPECIFICATIONS

Wing Span	-- 156 feet 1 inch (47.6 m)
Overall Length	-- 159 feet 2 inches (48.5 m) (767-300: 180 feet 3 inches (54.94 m)
Fuselage Length	-- 155 feet (47.2 m) (767-300: 176 feet 1 inch (53.66 m)
Tail Height	-- 52 feet (15.8 m)
Body Width	-- 16.5 feet (5 m)
Passengers	-- 216 mixed class (18 first class; 198 tourist); up to 290 in charter configuration (767-300: 261 mixed class)
Lower Deck Volume	-- 3070 cubic feet (87.7 m ³) (767-300: 3790 cubic feet (107.3 m ³)
Maximum Takeoff Gross Weight	-- 315,000 pounds (142.880 kg) or 300,000 pounds (136.000 kg) or 282,000 pounds (127.915 kg) or 767ER and 767-300: 345,000 pounds (156.490 kg) 767ER (optional): 335,000 pounds (151.950 kg)
Engines	-- Two Pratt & Whitney JT9D-7R4 or General Electric, CF6-80A, at airline option. Maximum rated thrust per engine: 48,000 pounds or 50,000 pounds.
Range	-- 4100 statute miles (6610 km) 767ER 5700 statute miles (9200 km)
First Delivery	-- August 19, 1982

767 PROGRAM CHRONOLOGY

- July 14, 1978 -- Production of the 767 got under way when United Airlines, largest U.S. air carrier, placed a \$1.2 billion order for 30 of the new twinjet equipped with Pratt & Whitney JT9D-7R4 engines.
- August 14, 1978 -- Boeing and Aeritalia, Italy's largest aircraft firm, signed a contract under which the Italian firm became a risk-sharing major participant in the 767 development and production program.
- September 22, 1978 -- Civil Transport Development Corporation of Japan became a risk-sharing major participant in the Boeing 767 development and production program. CTDC, now Commercial Airplane Company (CAC), is a consortium of Japanese aircraft manufacturers and component suppliers.
- November 15, 1978 -- American Airlines and Delta Airlines announced total firm orders for 50 transcontinental version 767s. Value of the order, \$1.9 billion, made it the largest single sales day in Boeing history. American ordered 30 and Delta 20. Both airlines selected General Electric CF6-80 engines.
- July 6, 1979 -- Fabrication of the first new-generation Boeing 767 parts began at Boeing's Central Fabrication Division, Auburn, Washington.
- April 8, 1981 -- Final assembly of first 767 began on schedule.
- August 4, 1981 -- First 767 completed and rolled from the 767 final assembly bay in the 747/767 plant.
- September 26, 1981 -- First 767 completed its initial flight. The flight, lasting 2 hours 4 minutes, took place four days ahead of the first flight date scheduled in 1978.
- May 27, 1982 -- The first 767 fitted with a two-crewmember flight deck made its initial flight and began the test program leading to F.A.A. certification of the configuration.
- July 1982 -- The first 767 international demonstration flight series took the new-generation airliner to cities in Europe, the Middle East and North Africa.
- July 30, 1982 -- Type certificate awarded 767 by U.S. Federal Aviation Administration.

- August 19, 1982 -- First 767 delivery, to United Airlines.
- September 8, 1982 -- First 767 commercial service, by United Airlines, Chicago-Denver.
- January 1983 -- Boeing announced the 345,000-pound (156.490 kg) gross weight 767ER (Extended Range) capable of carrying a full passenger payload 5700 statute miles (9200 km).
- June 15, 1983 -- The U.S. Federal Aviation Administration certificated the 767 for a maximum takeoff gross weight of 315,000 pounds (142.880 kg), 15,000 pounds (6800 kg) heavier than the 767s delivered to that time. The increased weight permits up to 760 statute miles (1225 km) greater payload.
- July 22, 1983 -- The U.S. Federal Aviation Administration cleared the way for pilots to fly both of the new-generation Boeing twinjets, the 757 and 767, after passing a type-rating test for either of the airliners. This was made possible by the close similarity of the 757 and 767 from the pilot's point of view.
- September 29, 1983 -- Japan Air Lines ordered the 767-300 with fuselage lengthened 21 feet 1 inch (6.4 m) and passenger capacity increased by about 50 to 261. Gross weight: 345,000 pounds (156.490 kg).
- March 27, 1984 -- The first 767ER (Extended Range) with optional 335,000 pounds (151.950 kg) gross weight made the first 767 commercial non-stop transatlantic flight the day after it was delivered to El Al Israel Airlines.
- June 1, 1984 -- The first 767ER for Ethiopian Airlines set a twinjet airliner distance record, flying 7,500 statute miles (12 082 km) from Washington, D.C., to Addis Ababa in 13 hours 17 minutes.
- August, 1985 -- Boeing announced the 400,000-pound (181,437 kg) option.
- January 14, 1986 -- The first 767-300 completed and rolled from the 767 final assembly bay at Everett, Washington.
- September 25, 1986 -- First 767-300 delivery, to Japan Air Lines.
- December 22, 1986 -- Extensive flight test of 767-300ER began for certification with General Electric engines.
- December 31, 1986 -- Extended Range Operations (EROPS) equipped aircraft have since May 1985, 13,000 flights with 99.838% successfully reaching their destination without turnback or diversion.
- March 25, 1987 -- Rolls-Royce provides third engine choice with announcement to install the RB211-524D4D engine on the Boeing 767 family of aircraft for entire engine into service by early 1990. Commonality with RB211 - powered 747s could benefit airlines operating both aircrafts.